ICSA 23
13-17 MARCH 2023 | L'AQUILA - ITALY

ATTENDING   COMMITTEES   IMPORTANT DATES   CONFERENCE TRACKS   SPONSORS   BECOME A SPONSOR

ABOUT ICSA

PROGRAM

ICSA 2023	MONDAY MARCH 13 (WKS AND TUTORIALS)		TUESDAY MARCH 14 (WKS AND TUTORIALS)		WEDNESDAY MARCH 15 (MAIN CONFERENCE)	THURSDAY MARCH 16 (MAIN CONFERENCE & INDUSTRY PROGRAM)		FRIDAY MARCH 17 (MAIN CONFERENCE)	
08:30 - 9:00 (CET)	Registration (All day between Room 1D and 1G)		Registration (All day between Room 1D and 1G))		Registration (room A0 till lunch room 1D post lunch till end of the day)	Registration (All day in room 1D)			
9:00 - 09:30 (CET) 09:30 - 10:30 (CET)	Workshop: BlockArch **Venue: Room 1G**	Tutorial 1: MLOps in the Cloud **Venue: Room 1D**	Workshop: MDE4SA & WASA **Venue: Room 1G**	Workshop: FIST **Venue: Room 1D**	Opening **Venue: Aula Magna** Keynote: Making Decisions – From Software Architecture Theory to Practice by Paris Avgeriou **Venue: Aula Magna**	Industry Keynote: The impact of AI and Edge Computing on Enterprise Architecture: a perspective from the field by Tatiana Rizzante Followed by Discussions **Venue: Aula Magna**		Session 17.1: Assurance and Architecture **Venue: Aula Magna**	Session 17.2: Architectural Design **Venue: Room A0**
10:30 - 11:00 (CET)	Break		Break		Break & Posters	Break		Break	
11:00 - 12:30 (CET	Workshop: BlockArch **Venue: Room 1G**	Tutorial 1: MLOps in the Cloud **Venue: Room 1D**	Workshop: MDE4SA & WASA **Venue: Room 1G**	Workshop: FIST **Venue: Room 1D**	Session 15.1: Security and Architectural Patterns **Venue: Aula Magna**	Session 16.1: Domain-specific Architectures **Venue: Aula Magna**	Session 16.2: Microservices: Experiences and Lessons Learned **Venue: Room A0**	Session 17.3: Architectural Knowledge Management **Venue: Aula Magna**	Session 17.4: Evolvability **Venue: Room A0**
12:30 - 13:30 (CET)	Lunch		Lunch		Lunch & Posters	Lunch		Lunch	

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13:30 - 15:00 (CET)	Workshop: BlockArch **Venue: Room 1G**	Tutorial 2: Blended Modeling **Venue: Room 1D**	Workshop: MDE4SA&WASA **Venue: Room 1G**	Tutorial 3: Distributed Systems **Venue: Room 1D**	Working Session 1: On the challenges and future directions of architectural knowledge management **Venue: Aula Magna**	Working Session 2: Architecting cloud-native systems. Industrial Experiences on Tools, Methods, and Practices **Venue: Room A0**	Working Session 3: Architecting with autonomous teams **Venue: Aula Magna**	Working Session 4: Evolution of the automotive software and electronics architecture towards a software defined vehicle **Venue: Room A0**	Working Session 5: Validation of software architecture research **Venue: Aula Magna**
15:00 - 16:30 (CET)					Session 15.2: Architecting for Microservices **Venue: Aula Magna**		Session 16.3: Panel on Educating the Next Generation of Software Architects **Venue: Aula Magna**		Keynote: Why Software Architecture is of Critical Significance Now More Than Ever by Bran Selic **Venue: Aula Magna**
16:30 - 17:00 (CET)	Break		Break		Break & Posters		Break		Break
17:00 - 18:00 (CET)	Workshop: BlockArch **Venue: Room 1G**	Tutorial 2: Blended Modeling **Venue: Room 1D**	Workshop: MDE4SA&WASA **Venue: Room 1G**	Tutorial 3: Distributed Systems **Venue: Room 1D**	Session 15.3: Architecture Change Management **Venue: Aula Magna**	Session 15.4: Architecting with Emerging Technologies **Venue: Room A0**	Session 16.4: Architecture and Industrial Practice **Venue: Aula Magna**	Early career discussion **Venue: Room A0**	Session 17.5: MIP and Poster Award Presentations and Closing **Venue: Aula Magna**
18:00 - 18:30 (CET)	Social Event: City Tour ending with a Tasty Appetizer at Dragoncello! (6:00 pm - starting from outside the DSU building)		Social Event: Sensorial Theater at Palazzetto dei Nobili (6:00 pm - starting from outside the DSU building)						
19:00 - 20:00 (CET)	Social Event: City Tour ending with a Tasty Appetizer at Dragoncello! (6:00 pm - starting from outside the DSU building)				Social Event: Show at the Auditorium (The concert will start at 7:00 pm)				
20:00 - 22:00 (CET)							Social Event: Gala Dinner at Magione Papale and Announcements (The buses will leave from Fontana Luminosa at 7:30 pm SHARP)		

Room Map
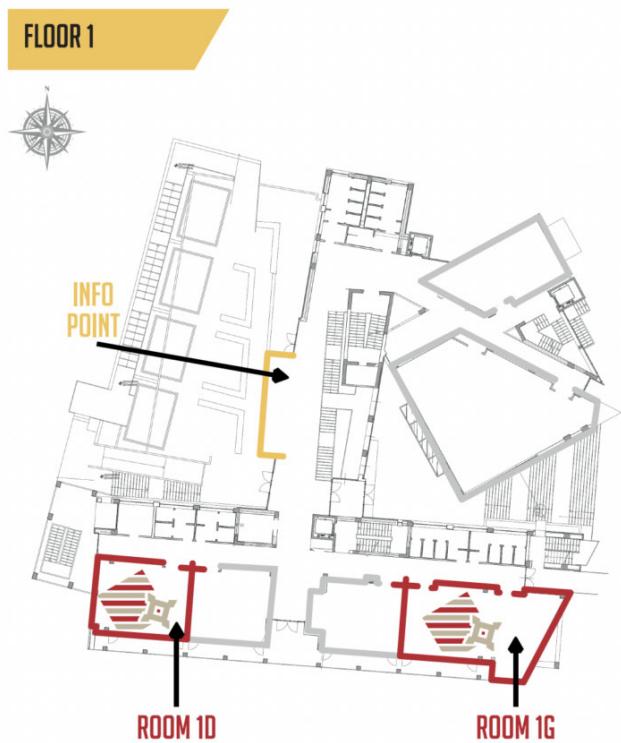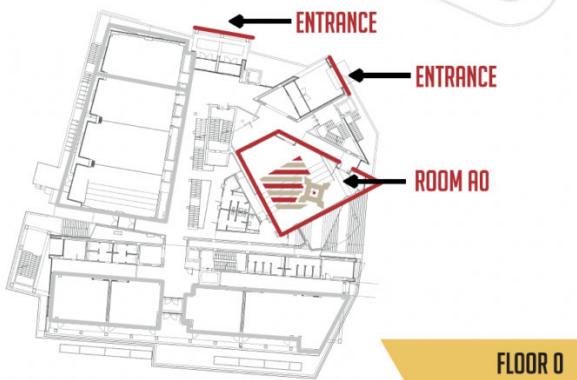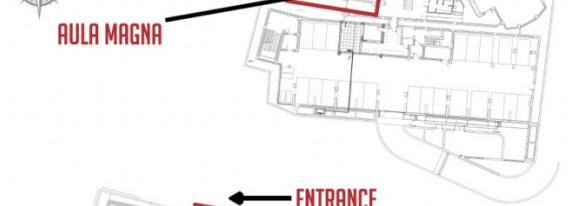
Detailed Program

Note: The candidates for the best paper award are tagged with 🏅 icon

Wednesday

09:00 - 9:30	**Opening**
09:30 - 10:30	**Keynote: Making Decisions – From Software Architecture Theory to Practice** **Speaker:** Paris Avgeriou, Professor, University of Groningen, the Netherlands *Chair: Radu Calinescu* More details
10:30 - 11:00	**Coffee Break & Posters**
11:00 - 12:30	**15.1: Security and Architectural Patterns** *Chair: Ian Gorton* • *[11:00 - 11:20]* Su Yen Chia, Sherry Xu, Ming Ding, David Smith, Hye-Young Paik and Liming Zhu, **A Selection Model of Privacy Patterns** • *[11:20 - 11:40]* Priyadarshini, Simon Greiner, Maike Massierer and Oum-El-Kheir Aktouf, **Feature-based software architecture analysis to identify safety and security interactions** • *[11:40 - 12:00]* Yue Liu, Qinghua Lu, Guangsheng Yu, Hye-Young Paik and Liming Zhu, **A Pattern-Oriented Reference Architecture for Governance-Driven Blockchain Systems** *[Online Presentation]* • *[12:00 - 12:12]* Quentin Rouland, Brahim Hamid, Jean-Paul Bodeveix and Jason Jaskolka, **Formal Analysis of the Satisfaction Relationship between Security Policies and Objectives in Software Architectures** • *[12:12 - 12:30]* Rodi Jolak, Thomas Rosenstatter, Mazen Mohamad, Kim Strandberg, Behrooz Sangchoolie, Nasser Nowdehi and Riccardo Scandariato, **CONSERVE: A Framework for the Selection of Techniques for Monitoring Containers Security**

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12:30 - 13:30	**Lunch & Posters**
13:30 - 15:00	**Working Session 1: On the challenges and future directions of architectural knowledge management** *By: Paris Avgeriou, Mohamed Soliman, Ian Gorton*
13:30 - 15:00	**Working Session 2: Architecting cloud-native systems. Industrial Experiences on Tools, Methods, and Practices** *By: Davide Taibi*

15:00 - 16:30   **15.2: Architecting For Microservices** *Chair: Andres Diaz Pace*

- *[15:00 - 15:20]* Riccardo Pinciroli, Aldeida Aleti and Catia Trubiani, **Performance Modeling and Analysis of Design Patterns for Microservice Systems**

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- *[15:20 - 15:40]* Gianluca Filippone, Nadeem Qaisar Mehmood, Marco Autili, Fabrizio Rossi and Massimo Tivoli, **From monolithic to microservice architecture: an automated approach based on graph clustering and combinatorial optimization**

- *[15:40 - 15:52]* Eng Lieh Ouh and Benjamin Gan, **An Exploratory Study of Architectural Style and Effort Estimation for Multi-Tenant Microservices-Based Software as a Service (SaaS)**

- *[15:52 - 16:04]* Telmo Lopes and António Rito Silva, **Monolith Microservices Identification: Towards An Extensible Multiple Strategy Tool**

- *[16:04 - 16:24]* Matteo Camilli, Andrea Janes and Barbara Russo, **Automated test-based learning and verification of performance models for microservices systems**

16:30 - 17:00   **Coffee Break**

17:00 - 18:30   **15.3: Architecture Change Management** *Chair: Raffaela Mirandola*

- Hongzhou Fang, Yuanfang Cai, Rick Kazman and Jason Lefever, **Identify Anti-Patterns in Distributed System With Heterogeneous Dependencies**

- Iffat Fatima, **Sustainability-Aware Software Architecting for the Future Cloud**

- Amit Kumar Mondal, Kevin Schneider, Banani Roy and Chanchal Roy, **A survey of software architectural change detection and categorization techniques**

- Sune Chung Jepsen, Bende Siewertsen and Torben Worm, **A Reconfigurable Industry 4.0 Middleware Software Architecture**

- Elvin Alberts, **Development and Integration of Self-Adaptation Strategies for Robotics Software**

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| 17:00 - 18:30 | **15.4: Architecting with Emerging Technologies** *Chair: Ilias Gerostathopoulos* |

- Sverre van Gompel, Gerard Schouten, Maarten Versluis and Willem Huijbers, **Robust Automated Fiber Tracking**

- Enxhi Ferko, Alessio Bucaioni, Patrizio Pelliccione and Moris Behnam, **Standardisation in Digital Twin Architectures in Manufacturing**

- Mubashir Ali, Patrizia Scandurra, Fabio Moretti and Laura Blaso, **Architecting a big data-driven software architecture for smart street lighting**

- Stefano Dalla Palma, Gemma Catolino, Dario Di Nucci, Damian Andrew Tamburri and Willem-Jan van den Heuvel, **Go serverless with RADON! A practical DevOps experience report**

- Martin Kjäer, **Analyzing the Use of Blockchains for Challenges in Inter-organizational Business Processes**

Thursday

09:00 - 09:30	**Industrial Keynote: The impact of AI and Edge Computing on Enterprise Architecture: a perspective from the field**
	Speaker: Tatiana Rizzante, Chief Executive Officer, Reply
	Chair: Patricia Lago
	More details

| 09:30 - 10:30 | Industrial Keynote and Discussions |

| 10:30 - 11:00 | **Coffee Break** |

| 11:00 - 12:30 | **16.1: Domain-specific Architectures** *Chair: Patrizia Scandurra* |

- Björn Leander, Aida Causevic, Tomas Lindstrom and Hans Hansson, **Access Control Enforcement Architectures for Dynamic Manufacturing Systems**

- Lucas F. Mendes, Carla Ilane M. Bezerra and Paulo Armando C. Aguilar, **Software Architecture for IoT-based Indoor Positioning Systems for Ambient Assisted Living**
  [Online Presentation]

- Fabiano Freitas, Lincoln Rocha and Paulo Maia, **A Pub/Sub-Based Mechanism for Inter-Component Exception Notification in Android Applications**

- Danylo Khalyeyev, Tomas Bures and Petr Hnetynka, **Towards a Reference Component Model of Edge-Cloud Continuum**

- Rafiullah Omar, **AI And Energy Efficiency**

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11:00 - 12:30	**16.2: Microservices: Experiences and Lessons Learned** *Chair: Valentina Lenarduzzi* • Dario Amoroso d'Aragona, Luca Pascarella, Andrea Janes, Valentina Lenarduzzi and Davide Taibi, **Microservice Logical Coupling** • Andrei Furda, Lionel van den Berg, Graeme Reid, Giancarlo Camera and Matteo Pinasco, **Developing a Microservices Integration Layer for Next-Generation Rail Operations Centers** • Heiko Koziolek, Rhaban Hark, Nafise Eskandani, Phuoc Sang Nguyen and Pablo Rodriguez, **TOSCA for Microservice Deployment in Distributed Control Systems: Experiences and Lessons Learned** • Francisco Ponce, Jacopo Soldani, Hernan Astudillo and Antonio Brogi, **Smells and refactorings for microservices security: A multivocal literature review** • Jouni Männistö, Antti-Pekka Tuovinen and Mikko Raatikainen, **Experiences on a Frameworkless Micro-Frontend Architecture in a Small Organization**
12:30 - 13:30	**Lunch Break**
13:30 - 15:00	**Working Session 3: Architecting with autonomous teams** *Organized by: Eltjo Poort, Architecture Practice Lead, CGI and Arjan Van Krimpen, Enterprise Architect, Transavia*
13:30 - 15:00	**Working Session 4: Evolution of the automotive software and electronics architecture towards a software defined vehicle** *Organised By: Hoai Hoang Bengtsson: System Architect, Volvo and Patrizio Pelliccione, Gran Sasso Science Institute, Italy*
15:00 - 16:30	**16.3: Panel: Educating the Next Generation of Software Architects** *Panelists: David Garlan, Patricia Lago, Uwe Zdun, Eltjo Poort and Ian Gorton* *Facilitator: Ipek Ozkaya* More details
16:30 - 17:00	**Coffee Break**
17:00 - 18:30	**16.4: Architecture and Industrial Practice** *Chair: Anne Koziolek* • Céline Madeleine Aldenhoven and Ralf Sascha Engelschall, **The beauty of software architecture** 🏅 • Gastón Márquez, Hernán Astudillo and Rick Kazman, **Architectural Tactics in Software Architecture: A Systematic Mapping Study** • Binish Tanveer, Ehsan Zabardast and Javier Gonzalez-Huerta, **An approach to align socio-technical dependencies in large-scale software development** • Andre Paris and Eduardo Guerra, **Case Study About the Impact of Being Remote on the Architectural Decisions of a Startup Team** *[Online Presentation]* • Karthik Vaidhyanathan, Anish Chandran, Henry Muccini and Regi Roy, **Agile4MLS-Leveraging Agile Practices for Developing ML-enabled systems: An Industrial Experience**

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17:00 - 18:30	**Early Career Discussion** *Chair: Elena María Navarro Martínez* **Early Career Advisory Panel** • Gerostathopoulos Ilias, Vrije Universiteit Amsterdam • Patricia Lago, Vrije Universiteit Amsterdam • Valentina Lenarduzzi, University of Oulu • Davide Taibi, Tampere University • Damian Tamburri, Eindhoven University of Technology

Friday

09:00 - 10:30	**17.1: Assurance and Architecture** *Chair: David Garlan* • Sam Procter and Jerome Hugues, **Contracts in System Development: From Multiconcern Analysis to Assurance With the Architecture Analysis and Design Language** • Marcello M. Bersani, Matteo Camilli, Livia Lestingi, Raffaela Mirandola, Matteo Rossi and Patrizia Scandurra, **Towards Better Trust in Human-Machine Teaming through Formally Verified Explanations** • Barbara Gallina, Leonardo Montecchi, André Luiz de Oliveira and Lucas Bressan, **Multiconcern, Dependability-Centered Assurance Via a Qualitative and Quantitative Co-analysis** • Samira Silva, Adiel Tuyishime, Tiziano Santilli, Ludovico Iovino and Patrizio Pelliccione, **Quality Metrics in Software Architecture** • Gabriel Rodrigues, Ricardo Caldas, Gabriel Araújo, Vicente de Moraes, Genaina Rodrigues and Patrizio Pelliccione, **An Architecture for Mission Coordination of Heterogeneous Robots**
09:00 - 10:30	**17.2: Architectural Design** *Chair: Catia Trubiani* • Aurora Macías, Elena Navarro, Carlos E. Cuesta and Uwe Zdun, **Architecting Digital Twins Using a Domain-Driven Design-Based Approach** 🏅 • Zipani Tom Sinkala and Sebastian Herold, **An Integrated Approach to Package and Class Code-to-Architecture Mapping** • Hernán C. Vázquez, J. Andres Diaz-Pace, Santiago Vidal and Claudia Marcos, **A Recommender System for Recovering Relevant Javascript Packages from Web Repositories** • Razieh Alidoosti, Patricia Lago, Eltjo Poort and Maryam Razavian, **Ethics-Aware DecidArch Game: Designing a Game to Reflect on Ethical Considerations in Software Architecture Design Decision Making**
10:30 - 11:00	**Coffee Break**

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11:00 - 12:30	**17.3: Architectural Knowledge Management**
	Chair: Patrizio Pelliccione

- Mohamed Soliman, Kirsten Gericke and Paris Avgeriou, **Where and What do Software Architects blog? An Exploratory Study on Architectural Knowledge in Blogs, and their Relevance to Design Steps** 🎖️

- Vincenzo Grassi, Raffaela Mirandola and Diego Perez-Palacin, **Towards a Conceptual Characterization of Antifragile Systems**

- Jan Keim, Sophie Corallo, Dominik Fuchß and Anne Koziolek, **Detecting Inconsistencies in Software Architecture Documentation Using Traceability Link Recovery**

- Domenico Amalfitano, Marco De Luca and Anna Rita Fasolino, **Documenting Software Architecture Design in Compliance with the ISO 26262: a Practical Experience in Industry**

11:00 - 12:30	**17.4: Evolvability** *Chair: Sam Procter*

- Mohamed Lamine Kerdoudi, Tewfik Ziadi, Chouki Tibermacine and Salah Sadou, **A novel approach for Software Architecture Product Line Engineering**

- Markus Funke, Patricia Lago and Roberto Verdecchia, **Variability Features: Extending Sustainability Decision Maps via an Industrial Case Study**

- Joran Leest, Ilias Gerostathopoulos and Claudia Raibulet, **Evolvability of Machine Learning-based Systems: An Architectural Design Decision Framework**

- Roberta Capuano and Fabio Vaccaro, **The Quality-Driven Refactoring Approach in BIM Italia**

- Mahyar Tourchi Moghaddam, Mina Alipour and Mikkel Baun Kjærgaard, **User Interface and Architecture Adaption Based on Emotions and Behaviors**

- Jason Lefever, Yuanfang Cai, Rick Kazman and Hongzhou Fang, **Towards the Assisted Decomposition of Large-Active Files**

12:30 - 13:30	**Lunch Break**
13:30 - 15:00	**Working Session 5: Validation of software architecture research**
	Organized by: Anne Koziolek, Karlsruhe Institute of Technology, Germany
15:00 - 16:30	**Keynote:**
	Why Software Architecture is of Critical Significance Now More Than Ever
	Speaker: Bran Selic, President, Malina Software Corp
	Chair: Vittorio Cortellessa
	More details
16:30 - 17:00	**Coffee Break**
17:30 - 18:30	**17.5: MIP and Poster Award Presentations and Closing**

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